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Commission of Conservation
CANADA

COMMITTEE ON LANDS

Agricultural Survey
1913

By
F. C. NUNNICK
Agriculturist

Reprinted from the Fifth Annual Report

OTTAWA—1914

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CANADA

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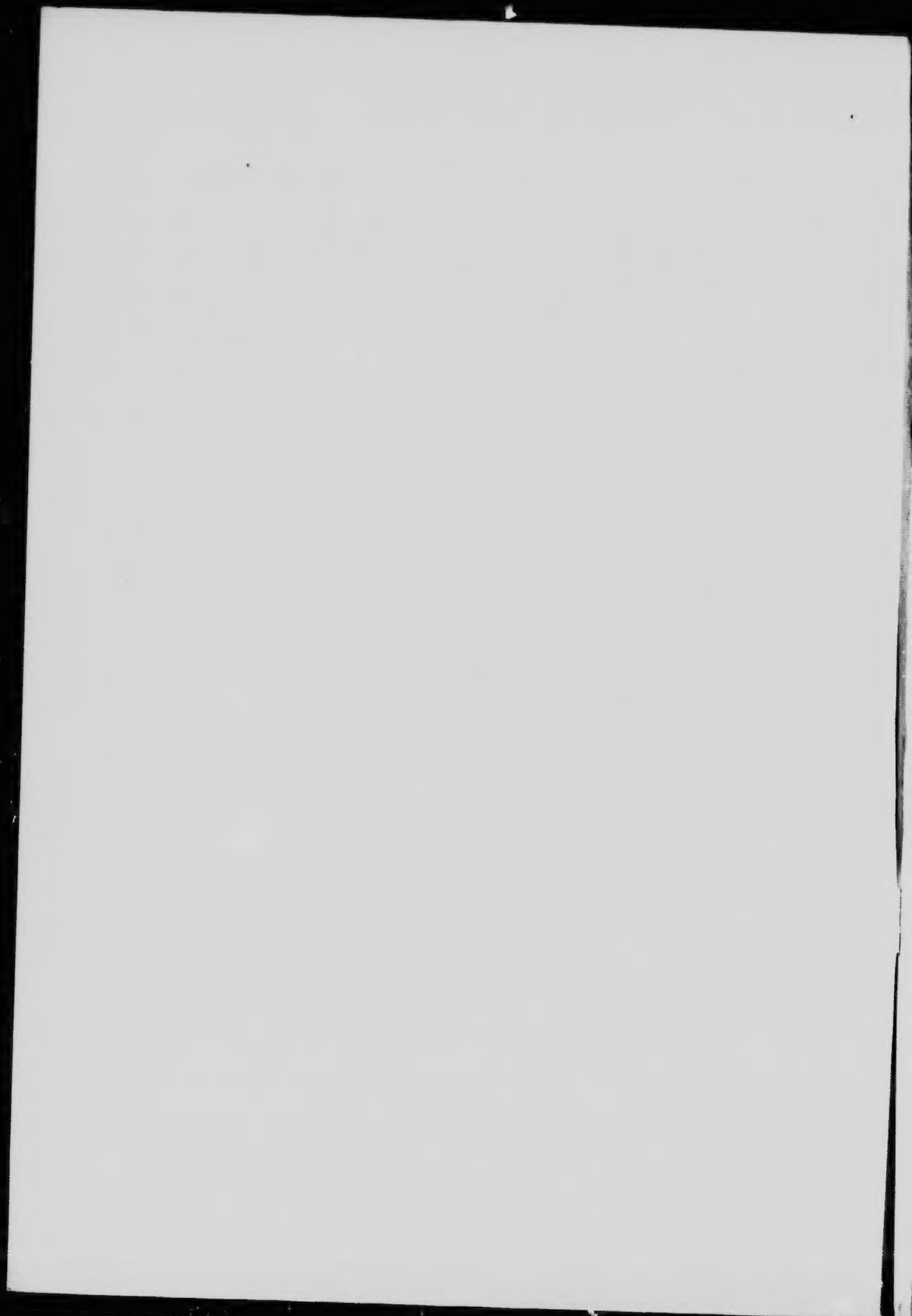


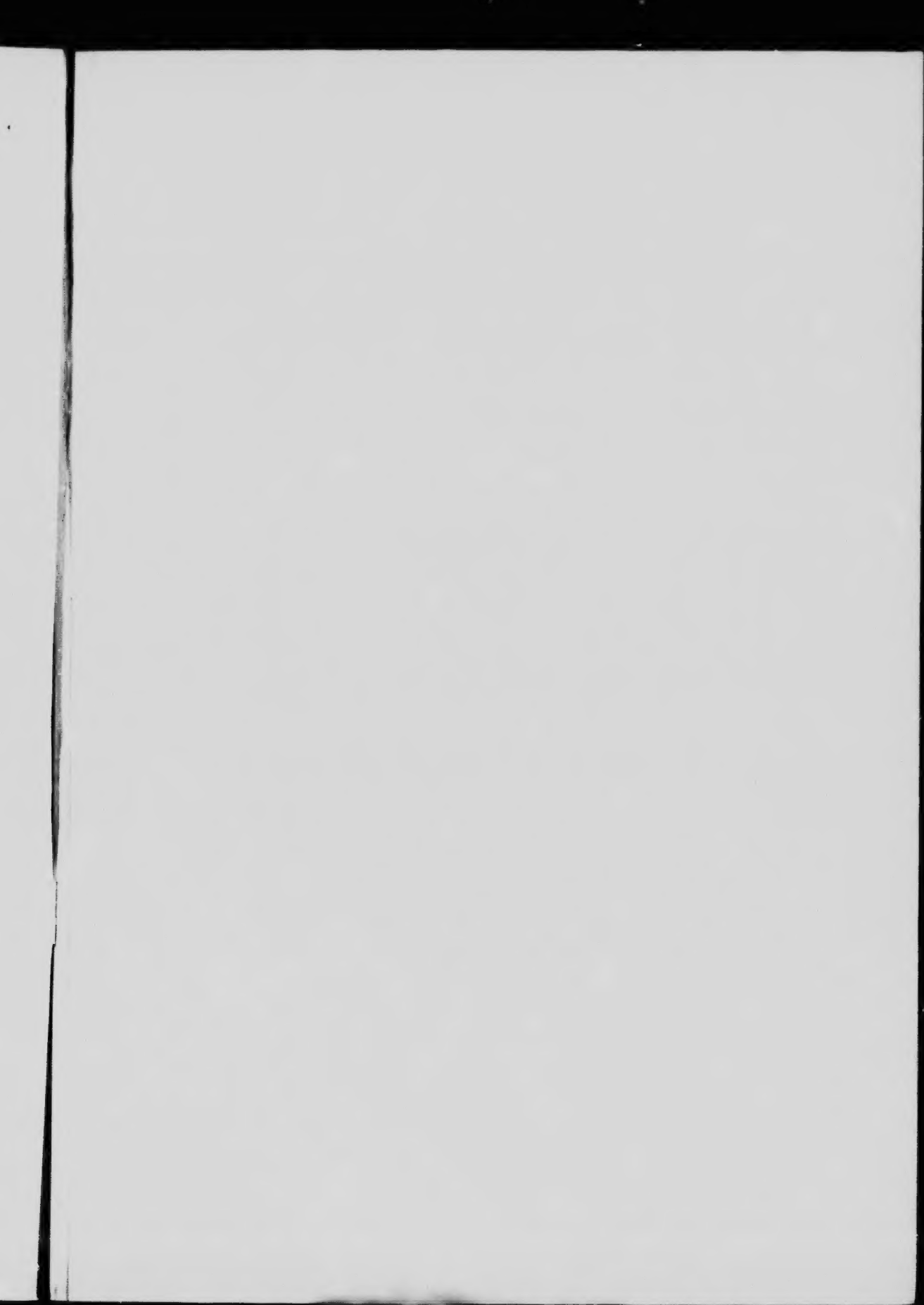
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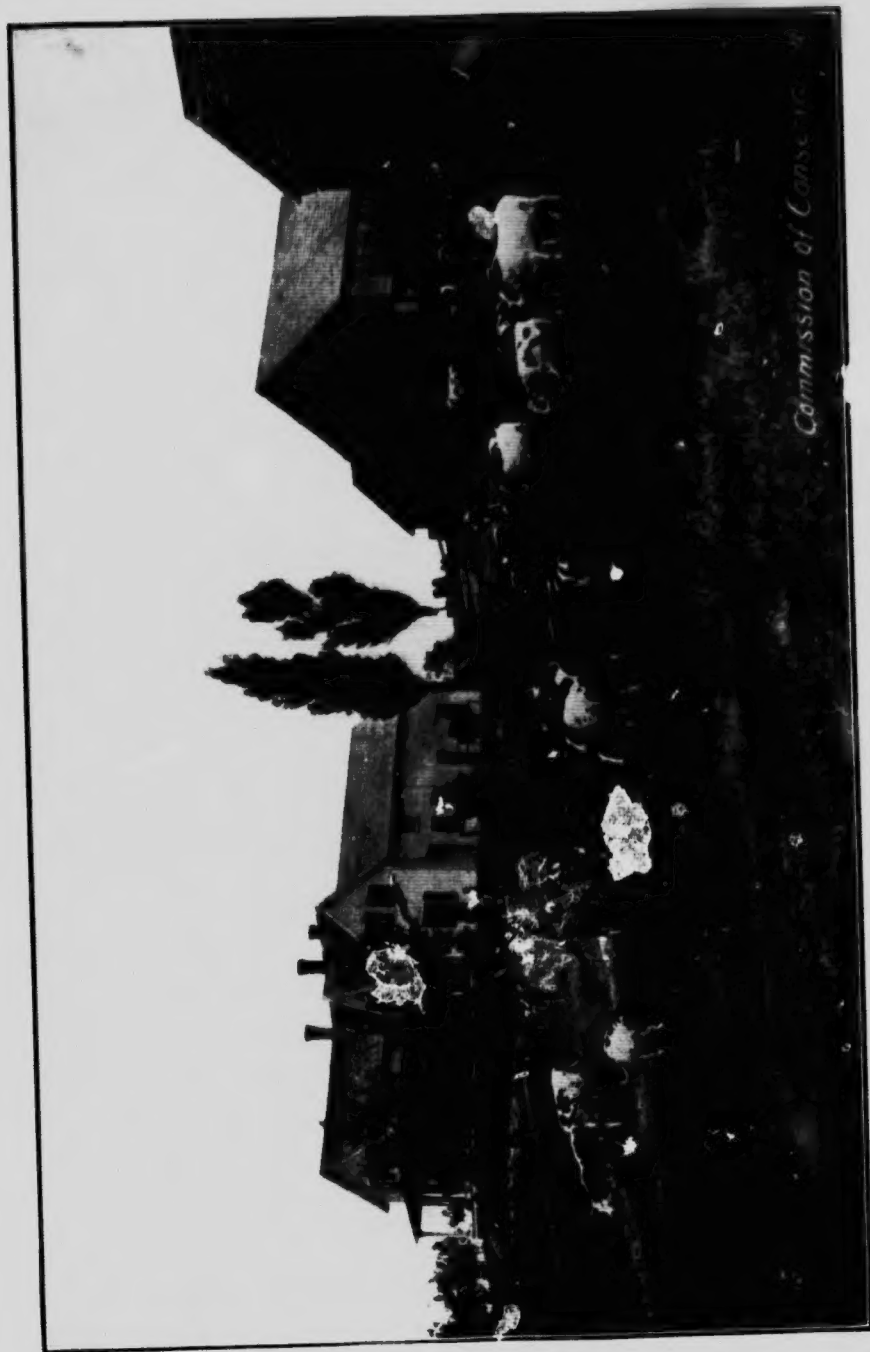
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A FINE HERD OF CATTLE ON A FARM IN EASTERN CANADA

There is money in cattle—money for dairy products, for beef, and most of all for next year's crop. It is provided every particle of manure is saved and applied to the land.

Agricultural Survey 1913

BY

F. C. NUNNICK

Agriculturist, Commission of Conservation

DURING the summer of 1913 the Committee on Lands of the Commission of Conservation, conducted agricultural survey work in twenty-nine districts in Canada. Two of these districts had been visited during 1912, but in the other twenty-seven the survey was conducted in 1913 for the first time. Owing to the special nature of the farming in British Columbia, the lack of extensive mixed farming areas and the fact that more districts were visited there during the previous survey than in the other provinces, British Columbia was not included in the survey of 1913.

CROPS GROWN, CROP ROTATION, SEED SELECTION AND MANURES

Prince Edward Island

The rotation generally followed, if it can be called "rotation," approaches most closely the old seven year system. The soil is fall ploughed and oats are sown the following spring. The portion of this not used for hoe crop the next year is seeded out to timothy and clover with a second crop of oats. Wheat follows the root crop and is also seeded with clover and timothy, no other grass seed being used. The next year a crop of mixed clover and timothy hay is harvested, followed by a crop of timothy, and then the land is left for several years in pasture. This pasture crop usually becomes very thin before the ground is again broken up.

A considerable amount of grain is sold from the farms for feed, but a few of the more wide-awake farmers are giving more attention to their grain and realizing better prices by selling it for seed. The majority of farmers pay very little attention to the selecting of their grain for seed. They exchange their seed oats and potatoes with some farmer living at a distance, every three or four years. They believe that the grain becomes run out or poorer in quality, when sown continually on the same ground. This no doubt happens when no attention is paid to selecting the seed in order that the best may be kept and used for seed.

Barn-yard manure is the mainstay of Prince Edward Island farming. When situated within reach, this is supplemented by seaweed, kelp or oyster shell mud. The latter contains a large

percentage of lime, which seems to have a beneficial effect on the non-calcareous soil of the Island. In very many instances more care should be taken of the barn-yard manure, as sometimes the neglect is almost criminal. Not one farmer of the one hundred visited had a manure cellar—a few have manure sheds. The manure is generally applied altogether to the hoe crop, before planting, and is applied more heavily on a small area than is desirable to obtain good results. As the hoe crop is so limited a great portion of the farm remains unmanured each year.

Nova Scotia In every report from the various districts visited in Nova Scotia, the word comes, "No rotation being followed." In one district three of the farmers were said to be following a rotation on a limited area of land, but not on the whole farm. The majority of the farmers do not understand what is meant by a systematic rotation of crops, much less do they understand the advantages which would accrue from practising a suitable rotation on their farms. Many of the farmers, when asked if a systematic rotation of crops was being followed on their farms, replied in the affirmative, but when they were questioned regarding the rotation it was plainly seen that a rotation was not being followed, and that they did not understand what it really meant.

A few of the farmers save their own timothy seed ; practically none saves their clover seed. Many who are not now saving their own timothy seed could very easily and successfully do so. Speaking generally, the seed grain is purchased. This is often not well cleaned before it is sowed, as the farmers have the idea that it does not need cleaning. As a result, weeds are introduced to the farm in this way.

Many varieties of oats are being sown. In one district seventeen varieties were being sown on less than forty farms. A farmer will hear of some new variety, and will purchase it without knowing anything regarding the percentage of hull, the stiffness of straw, or its general suitability to his land and conditions. The farmer should purchase standard varieties which have been tested and proved to be suitable for his conditions. There are no special precautions taken at harvest time and threshing time to avoid the inclusion of noxious weeds in the grain.

Manure is not cared for as it should be, but the care taken is much better than in Ontario and the Western provinces. Manure sheds or cellars are found on many farms and hogs are allowed to run on top of the manure in most cases. Ontario farmers would

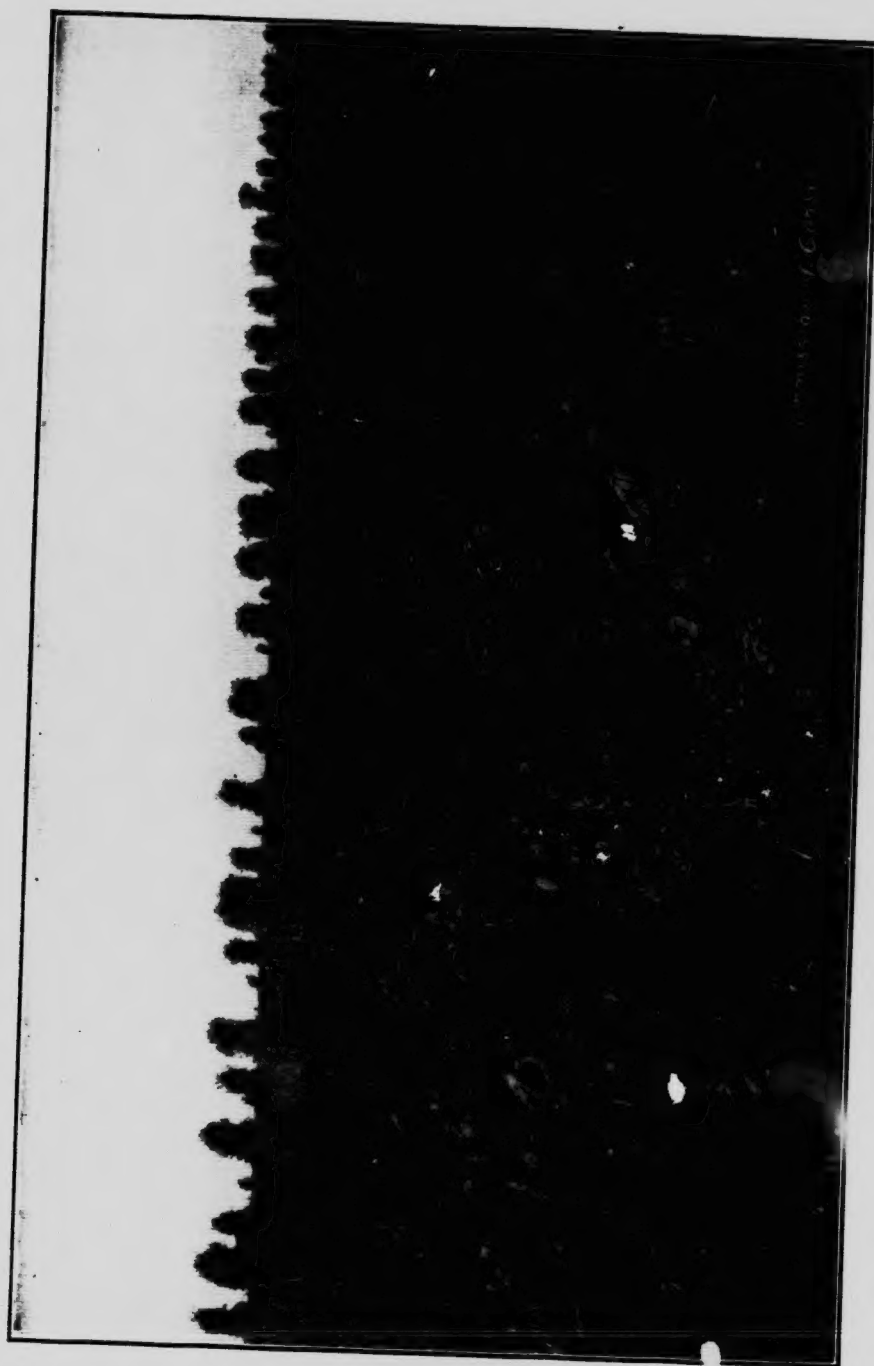
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THE IMPORTANT PART OF A SYSTEMATIC ROTATION OF CROPS
On the average farm the area in hoe crops is far below what it should be. (See Agricultural Survey Tables). Fields like this should be seen on every farm.

be surprised at the amount of commercial fertilizer used in many districts in Nova Scotia, particularly in the orchard districts. The barn-yard manure is put on the orchards at the rate of about fifteen tons to the acre, while the rest of the farm is often much neglected. It is too much like "putting the eggs all in one basket," and the result is hardship when the apple crop is small or a total failure.

While a few claim to be following a systematic rotation of crops, in one district where thirty-three farms were visited, only one man was found to be really following a systematic rotation. In another district, two men were found to be following something like a real rotation. In some districts, however, where potatoes are being grown quite extensively, it is bringing about conditions which will make it easier to practise a better rotation in time to come. The great trouble here is that the land is not broken up often enough and seeded down to clover but is allowed to lie in pasture for too long a time. This condition obtains almost everywhere over the three Maritime provinces and Quebec.

A few of the farmers save their own timothy seed, but no attention is being paid toward saving clover seed. In many instances Western oats were purchased for seed. These often contain noxious weeds and sometimes the oats have been frosted and the germination is poor. Farmers do not test these seeds for germinating power, consequently their crops are often thin where the Western oats have been sown.

The majority of the farmers have manure sheds, but do not make as good use of them as they might. So often the manure is handled carelessly, the farmers not realizing the necessity for conserving the liquid manure and not paying enough attention to the economical application of the manure produced on the farm.

Quebec (English-speaking) The lack of crop rotations which include some bulky succulent crop like roots or silage is the most serious defect in the farming system of the majority of the farmers visited. Practically none may be said to be following a truly systematic rotation of crops. A few are crying to bring their farms under a more systematic rotation. The rotation does not include the whole cultivated area and is only practised on a portion of the farm. Invariably, the farmers practising even a primitive rotation were found to be the most progressive, and their farms carried more stock per acre of tillable area, than did the farms where no hoe crops were raised. In one instance the addition

of a silo and the growing of ten acres of corn allowed an increase of one hundred per cent in the number of stock kept. On most of the farms visited, conditions were ideal for growing roots but in only a few cases was any attempt being made to remedy the present situation by the growth of this crop.

Very little grain is sold from the farms and what is sold is entirely for seed purposes. In no case was the grain grown under the regulations of the Canadian Seed Growers' Association. Many of the farmers buy what is known as "re-cleaned Western oats." These are frequently bright, clean and heavy, but are often more or less mixed with other grain and weed seeds, and in some seasons have been badly frozen, thus lowering the germination. There is little doubt but that the oats known as "re-cleaned Western oats" are a good grade of feed oats sold as seed.

In the older and more prosperous sections of Quebec the seed is sown with the drill, but in some parts it is sown with the broadcast seeder, and on many farms it is still sown by hand.

In some districts the farmers have fanning mills or can secure the use of one, and clean their seed grain before seeding. In other places the farmers' clubs have bought up-to-date machines for the use of their members. In still other districts, however, the fanning mill is an unknown quantity, many of the farmers never having seen one, much less having used the same for cleaning their seed grain.

The farmers of Quebec realize the value of manure and use all that they produce or can obtain. The manure is handled in a number of ways, all of which have their merits, but many of which are wasteful. Some farmers have concrete manure cellars, and a very few others have covered sheds, while the majority leave the manure in large piles, often under the eaves, saying that they cannot get enough water into the manure to prevent it from "fanging." They do not think of the waste which is going on from leaching and drainage. The manure is used on the hoe-crops, usually being ploughed under in the spring. A few top-dress on the grain stubble for the young seeding.

St. Polycarpe
(French-speaking)

Grain for two years, followed by hay for a number of years, is the system most generally followed. The amount of clover seed sown per acre is never as large as it should be, running at about three pounds to the acre. Timothy is sown at from 5 lbs. to 12 lbs. per acre. The area in hoe-crop is, in some districts, fairly large on account of corn being grown, which is cured and fed during the winter as stover. In some districts silos are being introduced. The results from the feeding of

silage are being watched closely and many farmers are thinking seriously of building silos in the near future. Nearly every farmer sells some grain from his farm each year. This grain is nearly always oats, and is sold to buyers who ship it to the seed markets. Very few sell grain for seed purposes other than exchanging a few bushels with their neighbours. In some districts buckwheat is grown, but not in very large quantities. Very little wheat is grown. Wherever the drill-seeder has been used it has given satisfaction and is increasing in popularity. It is to be hoped that the districts in which the grain is now sown by hand will soon awaken to its advantages.

The question of retaining soil fertility by returning the manure to the land with the least possible loss is one which, as yet, has received very little thought or attention from these farmers. Very few store the manure in a shed. The general custom is to throw it outside regardless of the position or drainage and leave it there until it is convenient to use it. The manure is mostly used on the land intended for hoe crops. It is not spread out to cover as large an area as it should. The amount of fertility returned to the land is small compared to that which is taken from it each year.

Ontario

On most of the farms in the older portions of Ontario we find rotations more nearly approaching what should be followed than in any other province, but even there the farmers do not include a large enough area in hoe crops and the rotations are not arranged systematically, so as to properly cover the whole tillable area of the farm within a reasonable length of time. Too often, a large portion of the farm is left unbroken for a long time. The rotation followed by a few of the best farmers visited is good, but that followed by the average farmer is far from what it should be. The adoption of some means of bringing to the attention of the average farmer, and proving to him the advantages of following a systematic rotation, is what is needed.

Very little grain is sold from the farm for seed purposes. The majority grow their own seed and when it is desired to change—which some farmers do about every three years—it is obtained from a neighbouring farmer. Very little seed is brought in from a distance, and too little attention is paid to grading and selecting the seed grain grown on the home farm. In many instances the best part of the field is kept for seed, but little attention is paid to prevent the inclusion of noxious weeds during threshing.

The manure, in a great majority of cases, is very carelessly handled. Very few have manure sheds or cellars in which to store

the manure to prevent loss. It is produced in rather large quantities, as on most farms a fairly large amount of stock is kept. Artificial manures are not often applied. Manure spreaders are used by many of the farmers, and most of them put the greater portion of the manure on the land that is to be ploughed for hoe-crops. Very little top dressing is done. Most of the farmers seem to realize the value of the farm manure, but the care they give it, is not in proportion to their realization of its worth.

Timiskaming As very little land has, as yet, been cleared, only a few farmers were found in Timiskaming district who practised a systematic rotation of crops. With the exception of hay, however, it is very seldom that one crop is grown on the same land for more than two years in succession.

Very little grain is sold from the farms for seed purposes, the majority of the farmers preferring grain grown in their own districts. They are, as a rule, particular about the seed they sow, only the plumpest grain and that which is free from weeds being sown when it is possible to obtain such. More attention is paid to this phase of the seed question than to the sowing of the best varieties.

Manure is produced in small quantities and no special care is taken to prevent its waste. Many of the farmers favour putting the manure upon the meadows in the fall of the year.

Manitoba The rotation followed in the Pilot Mound and Souris districts is wheat, wheat, oats, barley, summerfallow. Practically no clover is grown. A number of the farmers have commenced growing timothy and report good results. No hoe-crops are grown except a small patch of potatoes for home use. Around Gilbert Plains, the most common rotation is wheat, wheat, oats, barley, timothy, pasture. Very little summerfallowing is done. No red clover is grown.

The majority of the farmers are very careful about their seed grain, particularly the wheat. The wheat intended for seed is usually taken from the crop grown on the summerfallow, which is kept by itself and is well cleaned.

As very little live stock is kept, no attention is paid to the production of manures, and the manure supply is limited. Many of the farmers do not draw the manure to the field until it is thoroughly rotted and as it is left out-of-doors in piles, the rain washes a good deal of the substance out of it. Two farmers, in one district visited, stated that they had been farming there for thirty years and that they had never drawn a single load of manure out on the land.

Saskatchewan In the Lloydminster district a systematic rotation is not followed in any case, and it will likely be some time before anything in this line is attempted. The district is new and the farmers are more concerned about the immediate returns to be received than they are about the system which will eventually be most beneficial to their farms. In the Melfort and Yorkton districts the greater portion of the land is devoted to oat growing. In the Melfort district, ninety per cent of the farmers grow some wheat but it has not proven altogether satisfactory, as the district is subject to early frosts. In the Yorkton district about forty per cent of the farmers are growing wheat, but the acreage devoted to wheat growing is comparatively small. At Melfort, about twenty per cent of the farmers have sown timothy and a few rye grass, ten per cent alfalfa and six per cent red clover. The timothy and rye grass do well and give good yields. Alfalfa has really not been a success so far, owing to the fact that the soil has not been inoculated and hardy varieties have not been sown. Grasses and clovers are not grown to any extent around Yorkton.

As a general rule, farmers do not make a practice of growing grain for sale as seed. Usually, each man sows his own seed. Considerable interest is being taken in the quality of the seed sown, and it may be said that this awakening is not coming a minute too soon. A few of the farmers sow seed from the best portions of their fields, but the majority use the grain from the storage bin. They all clean their grain with the fanning mill before sowing and a few of them put it through the mill two or three times. It must be said that the farmers are careful in this respect.

The use of manure does not enter into the economic side of farming in Saskatchewan. About fifty per cent of the farmers visited make use of the manure, but it is usually drawn out to get it out of the way because they do not wish to burn it. Many of the farmers, however, either burn the manure, or allow it to accumulate for years and do not use it. No care whatever is taken to prevent waste.

Alberta Crop rotation is a more or less vague term to the majority of the farmers visited in Alberta. In practically every case some effort was made to alternate the crops grown, but in not more than a half dozen instances was the rotation based on any carefully thought out plan. The production of grain is the chief aim of these farmers. Timothy and brome grass are being grown in a small way on a number of the farms visited.

The farmers visited do not as a rule make a practice of selling much grain for seed. Seed is changed periodically, one would judge without much design other than to satisfy a more or less indefinite opinion that it should be changed. In nearly every instance the grain is cleaned and generally treated for smut.

The majority of the farmers stated that they used manure. Only two farmers practised drawing the green manure to the fields and spreading it in the winter time. A common practice is to throw it out in heaps wherever convenient, and haul it to the fields whenever time permitted during the summer or fall. In the majority of instances no systematic use is made of the manure. Absolutely no care was taken to prevent waste. On some farms great piles of manure were left in the open to leech; in one instance a pile was over 10 years old.

WEEDS, INSECTS AND PLANT DISEASES

Maritime Provinces

The following is what the collector for Prince Edward Island has to say regarding weeds and insects: "Weeds are still on the increase. A few individual farmers are putting up a brave fight but there is no governmental help and no combined effort is being put forth to drive back the invaders. In some neighbourhoods a few careless, neglectful farmers menace all the surrounding farms. Insect pests are pretty well under control with perhaps the exception of the Hessian-fly and joint-worm of wheat and an undetermined borer which has destroyed all fir timber on the Island." In Hants county, Nova Scotia, a weed called 'cadlock,' is obtaining a very vigorous foothold. Few farms are free from it, and it is much dreaded by the farmers. In Lunenburg county, Nova Scotia, couch grass and spurrey are giving much trouble and are bitterly complained of. In Inverness county, Nova Scotia, some fields were seen which had been worked up in the spring time, but as the grain had not been sown and these fields were left in a state of neglect, weeds had grown up and were being left to seed the neighbourhood. This neglect seems criminal and should be prevented. Devil's paint-brush is getting a foothold on some of the farms around Gagetown, New Brunswick. In these and the other districts visited in the Maritime provinces many of the common bad weeds are to be found on the farms.

Quebec

Practically all the noxious weeds and also the less objectionable ones are to be found in the districts visited in Quebec, although some districts are not so badly infested as others. Where the land is somewhat rough and the fields are fenced with zig-zag fences, and where the roadsides

are also rough, weeds grow in great profusion on account of it requiring much hand labour to keep the rough land clean. Many of these undesirable conditions could be avoided if a little time were expended in clearing up the waste places, cleaning out corners of the fields, straightening the fences and narrowing the roadsides.

The orchard and forest tent caterpillars are prevalent and destructive. Many of the sugar-maples and deciduous shade trees have suffered serious injury from the forest tent caterpillar. The potato beetle, which has long been regarded as the most serious insect pest, was almost extinct in Compton county in 1913, a thing unheard of in the last twenty-five years. Smut on the grain is very common and does more damage than the average farmer is aware of. Very few farmers treat their seed grain for smut.

Ontario

The farms in nearly every district visited are reported as being badly infested with weeds; sow thistle, wild oats, wild flax, wild buckwheat, rib grass, Canada thistle and couch grass are very common. The weed problem is getting to be a serious one with many farmers, and one that interferes largely with the crops grown and the present methods of farming being practised. Those farmers who follow a systematic short rotation of crops have been able to keep the weeds fairly well in check. On the majority of the farms visited, however, weeds are increasing. The farmers are unable to tell definitely where the weeds come from. In many instances no attention is paid to exterminating new weeds when they first appear on the farm, consequently, by the time the farmer does make an effort to get rid of them they have become so numerous that the process is a difficult and expensive one. The old adage, "a stitch in time saves nine" would be one well worth heeding in connection with the weed problem.

Insect pests are not reported as having done very serious injury in the districts visited this year. The codling moth is present in many of the orchards examined, but as very few farmers take any special care of the orchard and do not expect to derive much revenue from it, the loss from this source is not much felt. In some portions of Ontario as well as in Quebec, the potato beetle did not cause serious trouble during 1913. Oat smut, however, caused considerable loss. In several of the districts visited the farmers stated that they had suffered heavy loss in 1912 from potato rot, but crops of 1913 did not seem to be affected, at the time the collector visited the farms.

In Timiskaming district the farmers are not badly troubled with weeds. Much of the land has only recently been cleared and few weeds have had an opportunity to obtain a foothold. Many of the noxious weeds, however, are finding their way into the district, although not seen in great numbers. There is an excellent opportunity for combined effort to keep them in check if the farmers are only alive to the possibility of doing so.

Insects have been troublesome as yet. A number of the farmers reported loss from potato rot last year, but little evidence of this was seen this year.

Manitoba

The farmers are careless about weeds during harvesting and threshing, very few taking any precautions whatever, to prevent their distribution. A large number of farmers blame the threshers for distributing and increasing the weeds, more especially those who have stook-threshed. A number of farmers stated that they would not stook-thresh in the future, on this account. Several farmers reported finding patches of sow thistle where the threshing had been done the previous fall. The weed problem is becoming more and more serious each year. Wild oats are the worst in the districts visited, the majority of the farmers stating that they were more numerous than usual and blamed the bad weather conditions during the fall of 1912. Patches of Canada thistle were found on a number of the farms, but, in the Gilbert Plains district, strenuous measures are being used to prevent them spreading. Many farmers complain bitterly of weeds being allowed to mature on adjacent farms and thus infesting their farms. Very few of the weed inspectors are doing their duty. Many of the farmers seem to be well acquainted with the worst weeds and are very anxious to keep their farms as clean as possible, but where there are rented farms in the district the tenant usually works the farm for all it is worth, not paying any attention to weeds, impoverishing the fields, and neglecting to keep the fences and buildings in repair. It would seem that there should be a clause in the leases providing against this wholesale carelessness on the part of tenant farmers. This problem is most serious and should have some careful attention. A combined effort is what is needed to keep the weeds in check.

Saskatchewan

In Melfort and Yorkton districts, ball mustard is the worst weed, and is very bad on the majority of the farms visited. From all accounts, it was introduced in the early days in seed grain, and secured a good foothold before any attempt was made to check it. Now it seems almost impossible



ONE MAN OVERCOMING SCARCITY OF LABOUR

One man and four horses rolling and harrowing two or two acres a day. Machinery of great capacity will help to solve the labour problem.



AN OVERMANNED OUTFIT

Two men and an ox, cultivating about three acres a day. A striking waste of labour.

to cope with it. Wild oats and stinkweed are found on almost every farm, but as yet they are not so bad as the ball mustard. They are spreading gradually, and unless a combined effort is put forth immediately, they will cause serious trouble in the near future. Canada thistle also is found on many of the farms. In the majority of cases, the weeds are treated with indifference. In the Lloydminster district weeds are not yet considered seriously. Wild oats, ball mustard and couch grass are possibly the worst. These are spreading rapidly and are not looked upon as the serious enemies which they really are to the farmer.

Insect pests and plant diseases were not found to be causing much trouble. In a few cases cutworms and wire-worms affected garden plots but the loss occasioned was small.

Nearly every farmer treats the seed grain for smut and there was very little evidence of this disease found in the crop.

Alberta The weed problem bids fair to be one of the most serious that the farmers of Alberta will have to contend with. As in Saskatchewan, ball mustard is the most common weed at the present time, and the means adopted for its suppression are generally quite inadequate. In the Camrose district every farm visited was infested, and many fields were full of it. The single summerfallow method will not remedy the evil; moreover, the fallowing is often done in such an imperfect manner that other weeds are given a splendid opportunity to develop. In many fields, lambs' quarters is abundant, having gained its hold largely because of the apathy of the farmers, many of whom seem to regard it as more or less harmless and easy to kill. It, however, is not being killed, and while it is not so troublesome as some other weeds, yet it crowds out the grain and requires a good many dollars' worth of binder twine to tie it up along with the grain, as well as much labour to handle in threshing. All of this extra labour causes a loss to the farmers.

The areas allotted to each weed inspector are too large to be covered efficiently at the time when the inspecting should be done, to say nothing of making follow-up visits to see that instructions have been carried out. The farmers complain that the threshing machine men do not clean their machines before moving from one farm to another, and are quite helpless in this matter, as the supply of machines is limited and the threshers are accordingly in a position to disregard this very necessary precaution. The weed question is one that should be grappled with at once in Alberta. It is not yet too late to control these pests, but the situation is steadily and

rapidly assuming alarming proportions, and unless something is done soon to control the weeds, the weeds will control the country.

FUEL, POWER AND WATER SUPPLY

Prince Edward Island

The wood-lot as a source of fuel supply is fast becoming a thing of the past, and it is only a matter of a few years until all the farmers will be burning coal. Whether or not, wood for fuel is a profitable crop to grow, is a debateable question, and it is hard to persuade the average farmer that he should provide for generations yet unborn by planting a wood-lot. But apart from the economic phase of this question, there is perhaps nothing that gives a country an appearance of more barren desolation than to be utterly destitute of trees.

Gasolene engines and treadmills do the threshing and sawing and might be more often applied to the chores about the house and barn, such as churning, washing, pumping, etc. Three-horse machinery is slowly supplanting the one-horse and two-horse machines for various operations in sowing, cultivating and harvesting.

The water supply in most cases is sufficient, but it is seldom situated as conveniently as it could be. In many instances, it does not require the aid of a chemist or a bacteriologist to determine that it is at least unsafe. Wells dug many years ago, close to the buildings, are nearly always the source of supply. These are not as carefully protected as they should be, and on account of the porous nature of the soil of the Island, seepage from a source of contamination, has little difficulty in finding its way into the well.

Nova Scotia and New Brunswick

On almost all the farms visited in Nova Scotia and New Brunswick there is plenty of wood for fuel for many years to come. Very few farmers burn any coal. Many of them sell cordwood which is shipped away. Very few have set aside a permanent wood-lot, to which they give any attention, or to which they apply any practice, which will maintain the supply on the area set aside. There seems to be wood enough on most farms to last for an indefinite period and there is no anxiety felt in this regard. There is, however, much unnecessary waste going on, the effect of which will no doubt be felt in years to come.

In the orcharding districts of Nova Scotia and New Brunswick, gasolene engines are used for spraying the trees, for threshing and for sawing wood. In these districts many oxen are used for working around the trees. The adoption of wider machinery and three or four horse teams has not as yet taken place on many farms.

Very few of the farmers have water on tap and other modern conveniences in the house. The water supply is abundant in many districts, in the form of springs and brooks, but the general sanitary conditions should be greatly improved around many of the farm homes. The water closet is often too close to the source of the water supply to be safe.

Quebec In some of the districts visited every farmer had a private wood-lot composed of choice hardwood. In these districts the supply is sufficient for an indefinite period, barring forest fires, and provided care is taken in cutting the yearly supply. The native farmers are very careful in this respect and place a high value on their wood-lots. There is, however, a tendency among the incoming farmers to clear their wood-lots indiscriminately in spite of the fact that in many cases the land cut over is absolutely useless for agricultural purposes. This practice is bringing the newcomers into disrepute, and deserves to be strongly condemned. In almost every instance the farmers in these districts have a liberal supply of wood of good quality for their use, this phase of the home life apparently receiving much attention. In other districts in Quebec the fuel supply is very short. In one district where thirty-four farms were visited, a total of 42 acres of woods was found the greater portion of which was not available for consumption because it was usually young wood or stands of sugar-maple from which only the dead wood was removed. In the districts where the fuel supply is short, coal is brought in for heating purposes during the winter and wood used for cooking. The number of farmers using coal and the amount used per farmer is rapidly increasing. There is little likelihood of any forest planting being done in some of these districts so long as the soil retains its productivity.

The portable gasoline engine is fast gaining in favour in Quebec as a source of power. Nevertheless the old treadmill horse-power is often relied on to furnish power for threshing and wood-sawing. The erection of silos creates a necessity for a stronger and more economical power and the gasoline engine is the most efficient means of filling this demand. Many of the more progressive farmers have the engine installed so that various farm operations can be performed by it. The original investment in this regard is sufficiently large, however, to cause many farmers to hesitate before purchasing one. Very few windmills are to be seen. The scarcity of labour and the renewed activity in draft-horse breeding is bound in a short time to force the farmers into using larger and more efficient farm machinery. Many of the farmers are, at the present time, planning

to equip their farms with machinery that will permit of more work being done per man. Little or no provision is made for the use of power in the work of farm houses.

In some districts there are splendid and easily available water supplies. In such cases, where springs abound, the water is often piped directly to the buildings or can be conveyed there by means of hydraulic rams or pumps. Where conditions are so favourable there is little excuse for not having running water in the farm buildings, but there are many farms that are not thus equipped. The initial cost being seldom great and the saving of labour derived therefrom are features of great importance. In many instances, the water is piped to the yard and with little more expense it might be running into the house and stables, thus giving all city conveniences at the mere cost of installation. In other districts, where the land is flat, lack of a plentiful supply of water is keenly felt. Where such is the case, water is obtained wholly from wells, many of which are very deep, making it hard work to draw the water. In very few cases are shallow wells found that give any degree of satisfaction. Many of the farmers have storage tanks for rain water in the upper storey of the house, and in this way they have soft water on tap for washing purposes. As would be expected on this flat land the sanitary conditions are anything but desirable. The inadequate supply of water, with the poor natural drainage, does not so easily permit of the use of modern sanitary conveniences.

Ontario

In most of the districts visited, the fuel supply is not large, although most of the farmers have wood-lots.

Some are conserving what woods they now have while others are cutting theirs down year by year to get the land for cropping purposes. A few use coal, but wood can be obtained at fairly reasonable prices by those who have no wood-lots of their own. Few farmers are interested in setting aside a definite area as a wood-lot or in the re-forestation of waste land. Quite a number who do not have a wood-lot on the farm where they live have a few acres of land some distance away from which they obtain their fuel supply.

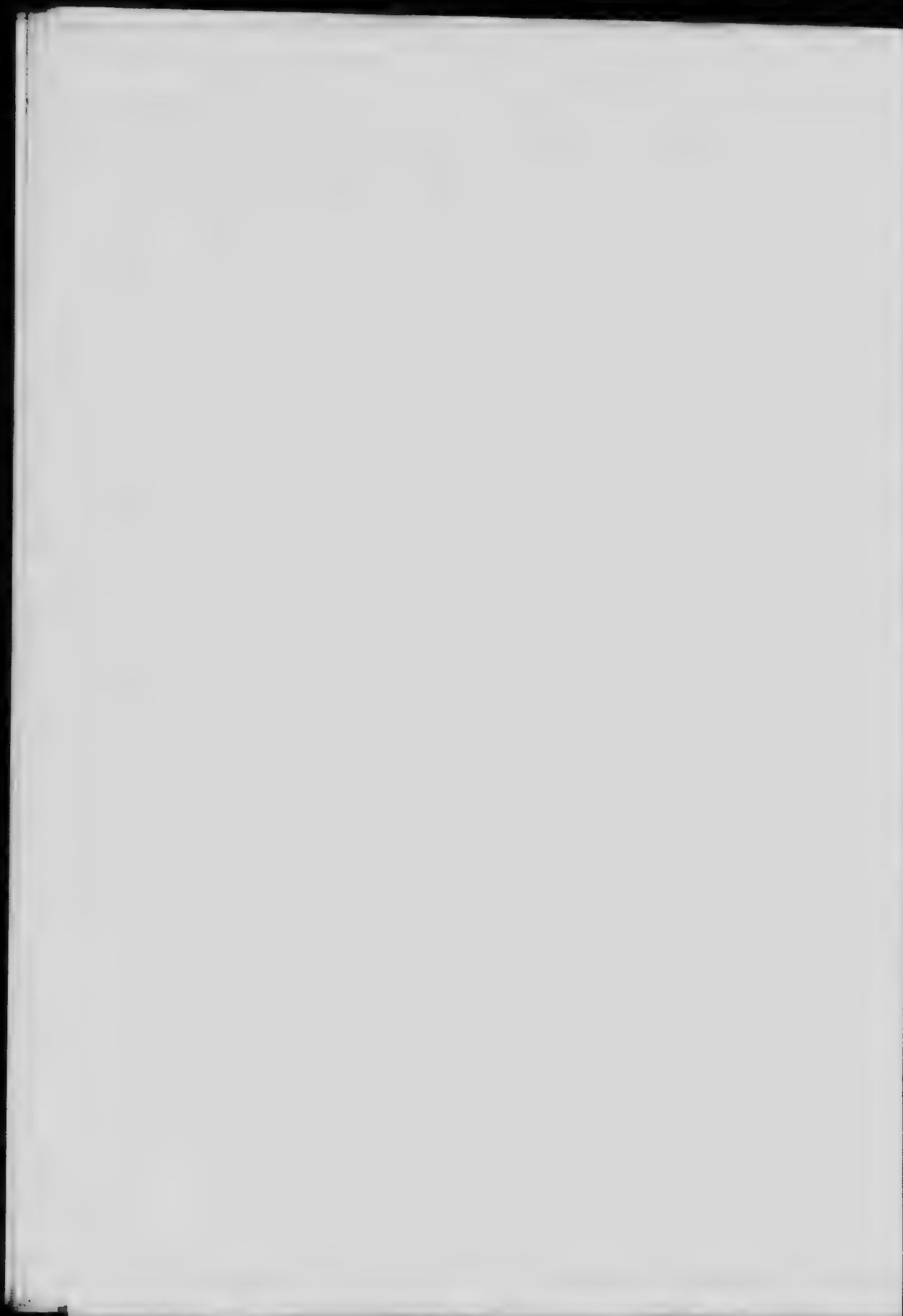
The chief source of power on the farm is the draft-horse. A number of farmers have windmills for pumping water. The majority of the farmers rent a steam-engine and separator for threshing their grain. The engine is also used in cutting corn for filling their silos. A few own gasoline engines for house and barn work.

In the districts visited, the water supply was abundant and in most instances the farm buildings were well laid out so that the water supply is free from contamination. Water is obtained prin-



DEVELOPING THE CO-OPERATIVE SPIRIT

Numerous meetings of farmers similar to this one, have been held on the Illustration Farms of the Commission of Conservation



cipally from wells and usually carried into the house in pails. In some districts water was obtained from springs. Many of the wells, from which water for stock was obtained, are not properly situated and little care is taken to prevent contamination. The wells on the whole, however, are fairly sanitary. Very few of the farmers have bathroom and modern conveniences in their houses.

Timiskaming In Timiskaming district the fuel supply is abundant, but often uncertain owing to the frequency of forest fires. Very little effort has been made toward preserving a supply of timber for fuel and many will be without a wood supply on their farm within a few years, in spite of the fact that there is a large amount of wood in the district.

The horse is the chief source of power for the settler. A few have excellent engines that are used for cutting wood and lumber and for threshing grain. No windmills were seen in this section.

The water supply was found to be abundant. A number of the farmers obtain their supply of water from flowing springs. Some farmers, however, are still using water from shallow wells which are not well situated with regard to surface drainage. A good supply of water can be had by drilling from 50 to 100 feet in the rock.

Manitoba In the Pilot Mound and Souris districts no wood is to be found, and the majority of the farmers burn coal. Any wood that is used has, of course, to be shipped in. In the Gilbert Plains district wood is the chief fuel. At one time the district was covered with small bluffs, but these are being rapidly cleared away and the supply of wood on the farms is small. As this district is near the Riding Mountain Forest reserve, wood can be obtained with very little trouble. No planting has been done with the exception of a few trees around the buildings for wind-breaks. In the Pilot Mound and Gilbert Plains districts the horse is still the mainstay on the farm as the source of power. The majority of the farmers visited in Manitoba have small gasoline engines which are used for pumping water and for crushing grain.

In the Souris district the water supply was very unsatisfactory, being so salty that it could not be used for the house. Many of the farmers have to draw water from a distance. Throughout the Pilot Mound and the Gilbert Plains districts the water is of good quality and easy to obtain, no trouble being reported by any of the farmers in these districts. More attention, however, should be paid to the situation of the wells, some being very close to the stables and receiving the drainage from them. Very few have hard water on

tap in the house, but the majority have soft water cisterns in the basement.

Saskatchewan In the majority of cases in the districts visited in Saskatchewan the fuel consists of both coal and wood. In the Melfort district more than half the farmers use wood entirely as fuel. In the Yorkton and Lloydminster districts coal is used as winter fuel and what wood is obtainable is used in the summer time. In no case was a definite area set aside and cared for as a wood-lot. There is little doubt but that it might be a profitable thing to do, but the farmers have so many other problems to solve that this, as yet, has been given very little attention. On a number of the farms maple, ash and poplar trees have been planted as wind-breaks, but on many of the farms these are not as thrifty and as satisfactory as the farmers would like to see them.

In all the districts visited, horses furnish most of the power for the farm work. A few farmers in the Lloydminster district have large steam or gasoline engines for ploughing and threshing, but the percentage is small as very few of the farms are large enough to warrant their use. On some of the farms, small threshing machines operated by gasoline engines are in use, and in most cases have given satisfaction. The use of these small machines, intended for home use only, will, in some measure, lessen the spread of weed seeds and in this way will be of considerable advantage both to the individual farmer and to the neighbourhood.

In the Melfort district, the water is distinctly alkaline, and about 90 per cent of the farmers use rain water for household purposes, many of the houses being provided with metal roofs in order to avoid dirt of any kind lodging on them. Many of the farmers store ice for use in cooling water. In the Yorkton district, the water supply for the most part, is good and, as a rule, plentiful. Little attention has been paid to the situation of the well, from a sanitary point of view. It has been dug at a point likely to yield a good supply of water, regardless of its proximity to the outbuildings.

In the Lloydminster district, the problem of getting a sufficient supply of water is a serious one for many of the farmers, some of them having to haul the water one or two miles for both the stock and for house use. Good water may be obtained by drilling to a depth of 150 to 200 feet, but many of them have not the capital, as yet, to undertake this work. The difficulty of getting water has prevented many of the farmers from going more extensively into cattle and hog-raising.

Alberta

In the Camrose and Innisfail districts there are very few farms that are not provided with several acres of poplar woodland. At Camrose, lignite coal of good quality may be had with very little trouble. Coal is easily obtained at Innisfail, although not mined in the immediate neighbourhood. At De Winton, coal is easily obtained, and a number of farmers make it their only fuel. On a few of the farms in this district some wood was found.

Horse-power is used almost altogether in performing field work. In the Camrose district tractors of any type cannot be used to any advantage until the poplar and willow areas are cleared up. At Innisfail the land is too rolling and broken by bluffs to permit of the use of tractors. In all the districts visited, many farmers were found to be using gasoline engines for house and barn work. Quite a number of windmills were seen.

In all the districts visited, the water supply was found to be ample and of good quality. The sanitary conditions in the Camrose district were found to be fair, but in some instances the manure piles were too near the well to insure freedom from contamination. On one farm in the Innisfail district the well was under the house, and on several farms there was not a water closet of any kind. In the De Winton district, drilled wells are quite common and are usually from 75 to 100 feet deep. There are also a number of small streams in the district which supply water for stock. Sanitary conditions were found to be fairly satisfactory.

LIVE STOCK, LABOUR AND MISCELLANEOUS

**Prince Edward
Island**

The live stock kept on most of the farms visited is a credit to neither the farms or farmers. Beef and dairy bulls are used with little discrimination and the careless crossing of pure breeds has produced a stock of cattle that are no better than scrubs. Heavy horses are the best class of stock kept, but too much attention has been given to the raising of general purpose horses, which, though handy for farm work, are not good for the export market.

In many instances, serious hardship is brought about by the scarcity of labour. This might be greatly alleviated by adopting a more systematic plan of farming, by using machinery of greater capacity and adopting more definite hours of labour.

Farming, in the true sense of the word, that is, as opposed to soil robbing, is not considered as a business proposition. It is doubtful if any of the farms visited were paying a dividend on the capital invested, if the time of the farmer, his wife and family is

considered to be worth even ordinary labourer's wages. Many of the farms have become impoverished and unless a radical change takes place in the farming methods it is only a matter of a few years until they will cease to support their owners.

Farmers, as a rule, do not move about enough. When they do take a holiday, it is to visit some distant city. They might often obtain more useful hints by visiting and observing the methods of their more successful neighbours. Incessant, plodding toil soon stunts a man's imagination and capabilities, and one can hardly wonder at the longing of the younger generation for a less exacting and more exciting mode of living. The business side of farming must receive more attention. Shorter and more definite hours of labour and being given a personal interest in the work, would go a long way towards keeping the young folk on the land.

**Nova Scotia and
New Brunswick**

In some districts in Nova Scotia, there appears to be a general awakening in regard to the benefits to be derived from improving the live stock on the farm and the agricultural societies have been doing good work in purchasing pure bred sires for the use of the members of the societies. In the orcharding districts many are neglecting their live stock for their orcharding and few are making their live stock keep pace with their orchards. In other districts conditions are yet very much in the rough, as little attention is paid to the improving of either the dairy or beef cattle.

In the districts visited in New Brunswick there was found to be much room for improvement in all classes of live stock. Horses, while good for farm work, are not of a quality and type to bring good prices when they are put up for sale. Many cows were seen on the farms visited that would not pay their board.

In most of the districts visited in New Brunswick and Nova Scotia good farm labour was found to be scarce, but this difficulty is overcome to some extent by the farmers exchanging work. It was also noticed that the farmers who pay promptly and who use their help properly, find little difficulty in getting all the men they want. There is a general complaint that a good many of the men brought into the country do not know how to perform the kind of farm labour that is required of them. Where men can be hired by the year so that steady employment is assured, less difficulty is experienced in obtaining reliable farm help. In all districts visited in these two provinces mixed farming was practised. In Hants county, Nova Scotia, however, the farmers look mainly to their orchards to pay their bills. Hay is also a very important crop, some men cutting as high as 200 tons in one season.



THE MISERABLE SCRUB

A two-year-old scrub bull, the type too often used on Canadian farms. Good cattle cost no more to raise and when ready for market bring higher prices.



CORNER OF A NEGLECTED ORCHARD IN NEW BRUNSWICK

Note the thick sod, the neglect of pruning and the effects of failing to protect the trees from prevailing winds. Such orchards cannot be profitable.

Many of the farmers met with are extremely anxious for information with respect to agriculture. The people generally are sociable, enthusiastic and anxious to improve their prospects. If an improvement could be brought about in the quality of the farm products, there is no doubt but that the demand and the price for the same would be considerably increased.

Quebec In the English speaking districts of Quebec, where the farms are large, the natural pasturage good, labour scarce and the farms a long way from a milk market, it was found that beef cattle raising is the most profitable branch of the live stock business. There is, however, a decided lack of system and science in breeding operations there. The course followed seems to be to make as many harsh outside crosses as possible. Very few of the farmers are breeding pure-bred stock, but those who are, appear to be the most successful farmers.

In the districts where the farmers are situated so that dairy products may be advantageously disposed of some very good dairy herds are to be found, but here again the lack of thought and judgment in breeding is very lamentable. Many of the farmers have not sufficient stock, although they are carrying a sufficient number of cattle to dispose of the feed on the farm, but the right kind of feed is not produced to maintain the size of herds which should be found on the farms.

The draft-horse breeding business has received a great impetus lately, and has taken on a new lease of life. Many fine imported stallions have been placed at service in many districts, the agricultural societies doing much to help in this work.

Although conditions are very favourable to sheep raising very few farmers keep sheep at all, and those who do, do not keep many. A number of reasons are given for this, such as scarcity of labour, danger from dogs, and the low price of mutton which obtained a few years ago, caused many to give up sheep raising as an unprofitable undertaking. On many of the farms visited, the fences were unsuitable for keeping sheep, and in reality this is a patent factor which prevents the farmer from engaging in this branch of farm work, as the dog problem is often quite imaginary and the labour involved is slight.

Poultry has not received much attention, other than enough to supply the local demand. This year, however, Macdonald College distributed many settings of plymouth rock eggs among the school children of the province and demonstration poultry houses are being

erected at several points. The effect of this extension work cannot help but be a stimulus to the poultry industry.

The labour question is of the utmost economic importance to the agricultural prosperity of the eastern provinces. The questions of good roads, rural mail delivery, etc., are overshadowed by the labour question. A great many of the failings and drawbacks to farming in Quebec may be directly or indirectly accredited to the scarcity of reliable, skilled farm help at all seasons of the year. The lure of the West and the opportunities offered in other industries have had their share in depopulating many sections of the province of its younger generation, as well as keeping the better class of immigrants from coming in. In many cases, the farms are run by the parents of the family, the children having sought other walks of life. No doubt this scarcity of labour could be overcome to some extent if the farmers would give employment by the year and provide their helpers with suitable and comfortable houses in which to live. Married men usually give best satisfaction in the way of farm help. It must be admitted that working conditions are not always ideal, the hours are long and Sunday work is disagreeable to the average farm hand. While there is no denying the justice of the farmers' claims that one of its great drawbacks is the scarcity of labour, yet a great deal of hand labour could be eliminated by using larger implements, improving the general lay-out of the farms and planning the work on the farm so that it could be conducted in a systematic manner.

In a number of cases too many horses are kept to be profitable, while the number of cattle kept, per hundred acres, is seldom up to the capacity of the farms. Perhaps one of the most striking facts disclosed by the survey in the districts where the English predominate is the scarcity of children and young people found on the farms, and the advanced age of most of the farmers.

What has been said regarding the English-speaking districts visited may well be said of the French-speaking districts, with the exception, of course, that there are more young people found on the farms. However, in the districts close to large towns or cities the scarcity of labour is keenly felt. The irregularity in the demand for farm help makes it difficult to obtain skilled farm hands when they are needed. This condition is most aggravated at the haying season, when, as a rule, labour is scarce everywhere. Too much hay and grain are sold off the farms and not enough stock is kept. Wasteful handling of the manure is a serious menace to the profitable continuation of the present system of farming, as is also the neglect of noxious weeds along roadsides, fences and ditches. The need for

better machinery and better cultural methods is plainly visible in almost all sections visited.

The live stock seen in the districts visited was in good condition, in almost every instance. The farmers in some districts were specializing in beef cattle, while in others dairy breeds predominated. There seems to be an awakening of interest in the breeding and production of heavy draft-horses and many good specimens of the draft breeds were to be seen. Many of the farmers also have horses of the lighter breeds for drivers. A comparatively small number of hogs was seen on the farms visited this year. Only small numbers of sheep are kept, although the conditions would seem favourable for sheep raising. In many districts there are large tracts of land from which very little is being realized at the present time, and which might be very profitably utilized for the pasturing of sheep.

There is a great scarcity of labourers throughout the sections visited, to remedy which, a great deal can and must be done by the farmer himself. He should plan a system of farming so that he can employ his helpers by the year. At the same time, he should use more labour-saving machinery. A great many different suggestions are made by the farmers, regarding the solution of the labour problem, a number of which are not very practical. Some of the suggestions, however, are well worth considering. One that is suggested is the establishing of Governmental Labour Bureaus in the towns, so that the farmer and labourer could be brought more easily together. It seems to be the impression that there are men in the country, if there could be some way devised for finding them and getting them on the land. Nearly all the farmers state that the helpers obtained from local sources are more efficient and more reliable than those brought from a distance. Farmers are ready to admit that the "home grown" farm helpers are the best, but many of these same farmers are doing very little towards making their home attractive enough to keep their boys on the farm.

There are many drawbacks to the continuation of the present system of farming, but many farmers find it very hard to describe them. They think there is something seriously wrong somewhere. They are not satisfied with the money they are making for the amount of work they do. It is a common complaint that small quantities of produce cannot be marketed at a profit, and that the farmer cannot obtain a higher price in the local market for a good article than for an inferior one. The farmers in the districts visited do not seem to take the marketing business enough into their own hands. The marketing end of the farm operations should

receive more attention by the farmers than it does at the present time.

In Ontario, as well as in Quebec, the fact was very noticeable that a large percentage of farmers were old men, or men past the prime of life.

In the Timiskaming district only a small number of cattle were found on the average farm, as the farmers have only a small amount of cleared land on which to grow feed. A few heavy draft-horses are being raised, but very few of the lighter breeds are to be seen. Just enough hogs are raised to supply the home demand for meats. The price of labour makes the hiring of outside help almost beyond the reach of the ordinary farmer, and there is, consequently, a scarcity of labourers on the farm.

The growing season is short, with frequent early frosts, which are a serious drawback to profitable farming. A number of the farmers work in the mines or elsewhere for a portion of the time, to help make a living for themselves and their families, while they are clearing the land. General mixed farming only is carried on. The soil in this district is a very fertile clay and clay loam. Cereal grains grow and mature well when not injured by early frosts. Potatoes, roots and clover do well. The district seems favourably adapted to the growing of clover for seed.

Manitoba

In the Pilot Mound and Souris districts very little live stock is raised. The majority of the farmers keep only enough cows to supply the house with milk and butter.

A number of years ago this was not the case, as large herds of cattle were kept in the Pilot Mound district, but on account of the low prices obtaining at that time, many of the farmers went out of stock. A number of the farmers expressed their intention of again going into cattle raising. Only one flock of sheep was reported. Around Gilbert Plains some fairly large herds of cattle were found, but on the most of the farms the grade of cattle is very poor. Very little attention is paid to breeding operations and immature scrub bulls are often used. Nearly all the farmers here sell some hogs each year.

The labour conditions in the districts visited in Manitoba are not very satisfactory. Great difficulty is experienced in obtaining house help and outside help in harvest time. Some have tried sending to England and Scotland for house help, but found difficulty in keeping them for any length of time, as they either married or preferred to work in town.

In regard to the harvest help problem, the one remedy seems to be in an altered system of farming, where more stock will be raised

and less grain grown. Under such conditions the farms would not require so much extra help in harvest time and the help could be profitably employed during the whole year. Nearly all the farmers visited agree, that with the increase of weeds and the wearing out of the land, it will be necessary to raise more stock in the future, thus increasing the supply of manure to keep up the fertility of the soil and by growing less grain, to keep the weeds in check.

One very noticeable feature brought out in the survey in Manitoba was the great difference existing between the surroundings of some homes and those of others. Some houses are surrounded by fine groves of trees, nice lawns, beautiful flowers and shrubs, splendid gardens containing all kinds of vegetables and small fruits, while others are simply dropped on the prairies with not a tree in sight, the house surrounded by long grass and weeds instead of flowers, and with only a small patch of potatoes for a garden. There seems to be such a lack of attention in many cases given to the home surroundings. It is not because the farmer cannot have a garden or cannot do better, but it is because he is indifferent and is not doing as well as he knows how to do.

Saskatchewan The Melfort district is well adapted for stock raising, as the country is for the most part well watered and both natural and cultivated grasses grow well.

The average number of stock kept by the farmers in this district is thirty-five. A few keep only one or two milch cows, but quite a number have from 40 to 60 head of fattening cattle. Hogs are quite in favour here and a good many have from 8 to 10 brood sows. The general opinion seems to be that stock raising is the best thing for this district and the majority of farmers are getting more stock from year to year.

The Yorkton district, in the early days, was a cattle country, but most of the farmers gave up raising cattle during the low prices in the '90's. The conditions are favourable here for stock raising, but very little stock is kept at present. The average number of cattle owned per farm is about ten. The sentiment in this district is becoming more in favour of stock raising. If the farmers could be assured that they would get good prices for some time to come, they would undoubtedly launch out more extensively into this branch of farming. Hog raising has not come generally into favour in this district. As yet, there are very few sheep in the district as the farmers claim it is impossible to protect them from the ravages of wolves.

In the Lloydminster district the stock is of fair quality but very little attention is being paid as yet to grading up the herds. Thi

will likely come in time, however. The newcomers are gradually increasing their herds and the number of cattle kept per farm is in the neighbourhood of eighteen. The general idea here, is that the district is better adapted for stock raising than for grain-growing, and a large increase in the number of stock kept per farm may be looked for in the near future. This district is not famous for its horses. They are, for the most part, common scrubs; very few really good brood mares are to be found, and, as a general rule, the horses are too light to do farm work to good advantage.

There seems to be little difficulty in obtaining farm help in the districts visited except at harvest time. Where men are hired by the year less difficulty is experienced in obtaining the help required.

The drawbacks indicated by many of the farmers were such as did not come under the province of the Commission. Many of them cited the high freight rates which makes the cost of marketing so high that the margin of profit is small, being barely sufficient for a living. Others mentioned the high rate of interest charged by the banks, making it almost impossible to obtain money to make needed improvements. This is a very vexed question, because there is the danger that some of them would abuse the privilege if easy rates on short loans were to be given.

Live stock conditions around Camrose were found to be fairly satisfactory. There are some herds of pure bred cattle in the district, although those visited were of the grades, the horses are usually of the grades, but a number of good general purpose horses are to be found on some of the farms. Sheep raising is unpopular because of coyotes.

The Red Deer country is well known for the excellence of the live stock produced there. Pure bred Shorthorns seem to be the favorite, with Holsteins, grade Ayrshires and Polled Angus well in the lead. Almost every farmer keeps from six to forty milch cows. There are not many imported stallions or brood mares in the district. Very few of the farmers are taking much interest in hog raising.

Several of the farmers visited in the De Winton district are engaged in raising Clydesdale horses. Many good horses were seen on a number of farms and the old time scrub range horse is being steadily displaced. Of cattle, the Shorthorn is easily the favorite. There are not many sheep in this district and hogs are not raised in very large numbers, as the Calgary hog market seems to have been too uncertain during the past few years.

The reports concerning labour conditions were very variable, and the means suggested for ameliorating labour scarcity, where it

existed, usually showed that only the most casual thought had been given to the problem. In the Camrose district 22 out of the 34 farmers visited, stated that so far as they were concerned labour was plentiful enough, while the remaining 12 stated that they had difficulty in getting men for the busy season. Many of the farmers, however, admitted that it was very difficult to get good stock-men and milkers. In many instances the home surroundings were such as to repel competent labour.

Very few complaints were heard regarding help with the house work on the farms. This is probably due, to some extent at least, to the thoughtlessness of the farmer and should not be considered as being an indication that such help is always available.

There was much complaint in the De Winton district regarding the unsatisfactory market conditions. There seems to be, in most of the districts visited, much ignorance regarding business methods and the farmers are suspicious, not only of outside buyers, but of their fellow farmers. This is a regrettable state of affairs, as co-operation is based essentially on mutual trust. Other drawbacks mentioned in the various districts were high freight rates and the lack of agricultural credit.

Ownership conditions have a fixed and important bearing on farm life and work. In the district around Camrose there are a great many vacant farms owned by non-resident speculators. A few have also been abandoned either by homesteaders or by subsequent owners. The latter class of farms are usually a serious menace on account of the weeds that grow on and spread from them. This condition of vacant farms is having an ill effect on the social situation in the community. Schools are often poorly attended and the settlers live too far apart to communicate with each other as freely as could be desired. There are, too, in a number of districts in Alberta, many tenant farmers and these are almost without exception little else than soil miners.

The tables which follow give the detailed figures of the survey.

Agricultural Survey Statistics, 1913

I. AREAS

	N.S.	P.E.I.	N.B.	Que.	Ont.	Man.	Sask.	Alta.
No. of farms.....	150	95	100	200	200	100	100	100
Acreage surveyed.....	32,483	10,684	25,547	37,363	29,320	40,725	38,840	44,829
Average size of farm....	216	112	255	166	146	407	388	448
Tillable acreage.....	8,255	8,369	8,448	19,798	18,946	39,528	34,305	38,605
Per cent tillable.....	26	78	33	60	64	97	88	88
Woods (acres).....	14,219	1,732	14,548	6,746	5,715	355	885	2,969
Per cent in woods.....	43	16	57	20	19	8	2	6
Acreage in crops.....	8,132	6,656	8,328	15,362	15,519	28,170	21,262	12,476
Per cent in crops.....	25	62	32	46	52	69	52	25
Grain (acres).....	1,371	1,960	1,112	4,157	9,073	26,155	20,929	9,822
Per cent in grain.....	16	18	13	27	58	93	98	78
Hoe crops (acres).....	392	302	507	598	989	56	92	55
Per cent in hoe crops....	4	4	6	4	6	2	4	4
Hay and pasture (acres)...	6,424	4,261	6,694	14,064	7,879	5,365	641	18,418
Per cent, hay and pasture	20	4	26	42	26	13	1	39
Summerfallow (acres)...	30	...	...	...	801	6,707	3,943	2,445
Per cent in sum'fallow...	.009	...	...	...	2	16	10	5

II. ROTATION OF CROPS

(Figures given are in percentage of number of farms)

	N.S.	P.E.I.	N.B.	Que.	Ont.	Man.	Sask.	Alta.
Systematic rotation....	18	13	18	19	56	...	63	53

III. SELECTION OF SEED

(Figures given are in percentage of number of farmers)

	N.S.	P.E.I.	N.B.	Que.	Ont.	Man.	Sask.	Alta.
Using seed grain from own farm.	60	72	74	69	80	76	86	79
Systematically selecting seed....	3	..	7	5	2	1	1	5
Keeping best part of field for seed	51	31	75	53	51	79	42	82
Cleaning seed grain.....	64	86	82	78	97	100	100	99
Cleaning seed grain with fanning mill.....	51	83	77	78	96	100	100	99
Cleaning seed grain by other means.....	13	..	4	..	2	..	..	..
Treating seed grain for smut....	4	11	..	1.5	24	100	93	88

IV. PRODUCTION OF TIMOTHY AND CLOVER SEED

(Figures given are in percentage of number of farmers)

	N.S.	P.E.I.	N.B.	Que.	Ont.	Man.	Sask.	Alta.
Saving own timothy seed.....	28	68	3	48	45	16	1	28
Saving own clover seed.....	3	27	..	4	48	..	..	..

V. CLOVER AND ALFALFA

	N.S.	P.E.I.	N.B.	Que.	Ont.	Man.	Sask.	Alta.
Acreage seeded to clover.....	779	97½	570	2,717	3,488	25	22	..
Per cent of grain sown seeded to clover.....	57	49	51	763	37	.09	.1	..
Av'g. lbs. per acre sown of red clover.....	6	2	6	3	6	12	10	..
Av'g lbs. per acre sown of alsike.	3	2	2	2	5	3	..	9
Av'g. lbs. per acre sown of timothy.....	11	8	11	8	5	5	9	6
Per cent growing alfalfa.....	2	..	2	5	20	8	9	13
Acreage of alfalfa grown.....	2	..	..	10	186	13	19	58
Per cent of total crops in alfalfa.....	.003	..	..	.07	1	.04	.08	.4

VI. COMPARISON OF YIELD OF CROPS NOW WITH TEN AND TWENTY YEARS AGO

(Figures given are in percentage of number of farmers)

	N.S.	P.E.I.	N.B.	Que.	Ont.	Man.	Sask.	Alta.
WITH 10 YEARS AGO :								
Reporting same yield.....	24	29	40	..	31	21	37	36
Reporting increased yield.....	61	23	36	51	21	4	1	20
Average per cent of increase.....	16	19	26	27	12	13	19	16
Reporting decreased yield.....	5	31	8	10	22	57	7	8
Average per cent of decrease.....	18	17	16	16	22	19	6	15
WITH 20 YEARS AGO :								
Reporting same yield.....	6	1	31	3	15	1	..	1
Reporting increased yield.....	38	9	31	36	5	1	..	4
Average per cent of increase.....	22	20	35	46	12	15	..	22
Reporting decreased yield.....	5	29	9	7	8	43	..	1
Average per cent of decrease.....	23	27	13	18	18	34	..	..

VII. NAMES OF VARIETIES

(Figures given are in percentage of number of farmers)

	N.S.	P.E.I.	N.B.	Que.	Ont.	Man.	Sask.	Alta.
Knowing names of varieties of grain sown.....	66	95	63	61	93	95	88	82

VIII. MANURE

(Figures given are in percentage of number of farmers)

	N.S.	P.E.I.	N.B.	Que.	Ont.	Man.	Sask.	Alta.
Using farm manure.....	100	99	99	96	99	97	58	89
Using chemical fertilizer.....	92	9	70	46	1	..	..	..
No care to prevent waste.....	45	84	31	67	93	100	100	100
Having manure shed.....	34	15	65	26	6	..	..	..
Having manure cellar.....	21	..	4	7	..	..	..	..
Using manure spreader.....	26	21	22	10	67	29	2	2

XIII. FARM LABOUR

	N.S.	P.E.I.	N.B.	Que.	Ont.	Man.	Sask.	Alta.
Number in family.....	5	4	5	6	5	4	3	4
Number in family over 14 years of age.....	4	3	4	3	3	3	2	3
Number of days labour spent per 100 ac., by men.....	245	282	206	233	352	112	110	86
Number of days labour spent per 100 ac., by women.....	223	215	184	218	282	90	96	71
Number of days labour spent per 100 ac., by boys.....	21	11	14	102	4	..	3	20
Number of days labour spent per 100 ac., by girls.....	16	10	10	66	3	..	2	13
Number of days labour paid outside help per 100 acres.....	116	51	70	91	133	84	81	44
Total number of days labour spent per 100 ac., in year.....	621	574	487	702	769	293	290	236
Per cent reporting scarcity of labour.....	65	75	59	66	86	21	32	29
Per cent reporting scarcity of men.....	61	71	55	66	86	21	17	25
Per cent reporting scarcity of domestic help.....	15	22	26	18	25	..	15	8

XIV. FUEL SUPPLY

(Figures given are in percentage of number of farmers)

	N.S.	P.E.I.	N.B.	Que.	Ont.	Man.	Sask.	Alta.
Using wood.....	81	81	98	81	64	50	47	30
Using coal.....	2	4	..	..	4	40	5	24
Using coal and wood.....	17	10	1	16	32	10	48	46
Using gas.....	..	..	..	3	..	..	..	..
Average No. of years wood supply will last on farms having wood lots.....	30	23	70	22	14	..	16	11
Having indefinite supply.....	71	21	77	62	23	1	4	44
Having definite wood area set aside.....	45	25	37	73	29	0	23	18
Having done planting.....	..	..	..	..	3	72	24	36
Average No. of trees planted....	..	..	..	..	925	885	1,021	596
Successful in planting.....	..	..	..	..	2	98	100	52
Failing in planting.....	..	..	..	..	1	..	..	4

XV.—WATER SUPPLY FOR THE HOUSE

(Figures given are in percentage of number of farmers)

	N.S.	P.E.I.	N.B.	Que.	Ont.	Man.	Sask.	Alta.
Obtaining water for house from wells.....	78	89	44	48	95	83	75	90
Obtaining water for house from springs.....	20	3	56	44	4	1	0	9
Obtaining water for house from streams.....	2	2	..	8	0	3	6	2
Obtaining water for house from rain water.....	..	..	..	..	..	..	19	..
Having source of water supply within 10 ft. of, or at or in buildings.....	13	..	23	2	17	23	5	1
over 10 ft. and up to 25.....	8	..	13	5	26	18	6	4
over 25 and up to 50 ft.....	16	2	9	8	22	26	14	9
over 50 ft. and up to 100.....	13	7	7	10	13	11	15	29
over 100 ft. and up to 200.....	14	5	13	14	8	8	12	34
over 200 ft. and up to 300.....	11	5	3	8	4	2	11	8
over 300 ft. and up to 500.....	6	0	4	12	5	5	1	8
over 500 ft.....	8	3	16	33	5	7	4	7

XVI. DISTANCE OF SOURCE OF WATER SUPPLY FROM BUILDINGS OR OTHER SOURCES OF CONTAMINATION

(Figures given are in percentage of number of farmers)

	N.S.	P.E.I.	N.B.	Que.	Ont.	Man.	Sask.	Alta.
Having w.e. within 25 ft. of house water supply.....	1	1	..	9	2	1	5	0
Having w.e. over 25 ft. up to 50 ft.....	5	4	..	29	10	12	18	0
Having w.e. over 50 ft. up to 100 ft.....	14	9	..	6	42	35	13	24
Having w.e. over 100 ft.....	19	36	..	27	35	39	33	66
Disposing of sewage in pit under privy.....	98	75	89	82	..	99	99	100
Obtaining water for stock from well.....	46	85	34	49	77	83	38	66
Obtaining water for stock from spring or stream.....	49	11	61	7	20	17	14	33
Obtaining water for stock from pond or other source.....	5	3	1	44	3	0	7	1
Source within 10 ft. of or in b'ld'gs.....	6	18	8	14	10	26	2	3
over 10 and up to 25.....	4	25	7	8	5	12	9	2
over 25 and up to 50.....	16	24	16	13	11	20	11	9
over 50 and up to 100.....	15	7	2	11	32	19	20	21
over 100.....	54	15	41	42	42	19	44	60

XVII. METHODS OF CONVEYING WATER TO HOUSE

(Figures given are in percentage of number of farmers)

	N.S.	P.E.I.	N.B.	Que.	Ont.	Man.	Sask.	Alta.
By hand.....	87	83	56	56	89	87	83	84
Drawing or hauling by horses...	3	..	..	..	11	11	3	11
Having water on tap in house...	4	..	22	44	10	2	14	2
Having w.c. and bath in house..	5	..	6	21	10	1	..	2

XVIII. POWER ON FARMS

(Figures given are in percentage of number of farmers)

	N.S.	P.E.I.	N.B.	Que.	Ont.	Man.	Sask.	Alta.
Using horse power on farm.....	100	100	100	100	100	100	100	100
Using other than horse power on farm.....	18	..	..	..	..	2	23	6
Using horse, engine or windmill for house and barn work...	70	45	76	55	19	31	12	17
Having windmill.....	4	3	3	11	20	26	3	22

XIX.

(Figures given represent the

	NOVA SCOTIA					PRINCE EDWARD ISLAND					NEW BRUNSWICK										
	l	a	b	c	n	i	d	l	a	b	c	n	i	d	l	a	b	c	n	i	d
Ball Mustard																					
Barnyard Grass															2	2					
Bindweed																					
Bladder Campion								1	1												
Blue Burr	3	3																			
Blueweed	1	1																			
Canada Thistle	71	70	1					39	38	1		2	1	45	45						
Chickweed	6	6						43	28	15		12	8	12	12						
Chicory																					
Couch Grass	53	51	2					2	27	24	3		1	18	77	9	8				
Golden Rod	29	29				1		24	42	0		1	1	17	17						
Green Foxtail	2	2																			
King Devil																					
Lady's Thumb	2	2						5	5												
Lamb's Quarters	13	13						5	5						6	6					
Mayweed								24	21	3		5			1	1					
Milkweed	3	3																			
Wild Mustard	21	20	1					1	3	3					8	8					
Night Fl., Catchfly																					
Orange Hawkweed								4	4						18	16	2				1
Ox-eye Daisy	50	49	1					1	43	38	5	2	11	2							
Pepper Grass																					
Pigweed	4	4						18		16	2	17		23	23						
Ragweed															1	1					
Rib Grass																					
Shepherd's Purse	1	1						4	4						1	1					
Sow Thistle	3	3						33	31	2		3	4	2	2						
Stinkweed																					
Tumbling Mustard																					
Wild Barley																					
Wild Buckwheat	1							8	7	1		2		1	1						
Wild Carrot																					
Wild Flax																					
Wild Oats																					
Yarrow	8	8						31	26	5		2	14	2	2						

KEY TO LETTERS :

- Column (l) gives total percentage of farmers reporting the weed.
 Column (a) gives percentage reporting it as scarce on farm.
 Column (b) gives percentage reporting it as numerous on farm.
 Column (c) gives percentage reporting it as very bad on farm.
 Column (n) gives percentage reporting it as new to farm in last five years.
 Column (i) gives percentage reporting it as increasing.
 Column (d) gives percentage reporting it as decreasing.

WINDS

percentages of number of farms)

QUEBEC				ONTARIO				MANITOBA				SASKATCHEWAN				ALBERTA													
l	a	b	c	d	l	a	b	c	d	l	a	b	c	d	l	a	b	c	d	l	a	b	c	d					
4	4			1	2	10	10			9	2	0	0		12	9	14	2	22	1	56	74	44	39	13	1	10	40	
3	3			1	2	13	13		1	1	2	2			13	11	2			1		2	7	1					
1	1	1		1	2	1																							
8	6	2		3	4	25	23	2		1	15	9	5	1	0	1	45	24	20	1	6	3	3		1	1			
2	2			2	1	8	5	2	1								1	1		1		1	1						
63	52	11	1	64	1	83	33	45	5	4	10	78	44	21	3	31	4	17	14	3	1	7	15	14	1	2	5		
14	8	5	1	6	6	2	1	1																					
20	15	5		8	7	2	2																						
47	23	24	1	32	15	2	20	22	8	10	18	4	4				51	16	14	21	26	59	34	19	6	15	14		
16	13	3		3	12	5	3	5									1	1				37	54	33					
					57	15	38	2		9	2																		
6	2	3		5	1																								
10	9	1		2	7	44	43	1							2		2												
22	17	3	1	5	14	76	60	7		1	60	13	45	2			33	776	51		78	864	6	14	10				
27	23	4		14	9	78	71	7																					
25	23	2		6	11	33	31	2																					
35	24	9	2	12	23	24	22	2		1	1	11	9	2	1		12	10	1	1	5	19	15	4	3	1	6		
13	6	5	2	4	4	20	19	1			7	1	6				1	7	2	5	2	7	3	2	2	2			
38	28	9	1	21	17	2	2																						
34	21	13	1	6	28	52	45	5	2	1	2																		
											6	2	4		7	7						1	1			1			
16	8	6	2	5	6	46	1	3			17	11	55	6								31	26	5	1				
6	4	1		3	24	0	16	22	2	5	3	8	2	6	1							3	2	1	1				
26	21	5		7	17	28	19	7	2													6	4	2	1	1			
4	4			1	3	78	66	6	6	1	1	1																	
16	14	1	1	5	10	57	26	12	19	11	3	44	42	2	27	8	76	859	9	27	166	43	12	1	3	2			
27	14	10	2	8	12	4	3	1			51	19	20	21	1	430	46	35	8	3	723	3230	2		20	1			
1	1			1							7	6	1				1	1											
											1	1					69	653	10	23	78	763	8		13				
3	2	1			25	49	9	1		2	2						32	167	24	17	52	49	16	1	2	3			
					4	4																2	1	1					
1	1				12	7	13	8	6	1	5	2					17	16	1		1	15	12	3		2			
					45	21	7	17		4	3	98	20	78		69	7	3	62	19	2	69	2	26	20	4	2	4	6
40	29	11		9	6	66	65	1																					